

**JUDGES' RETIREMENT SYSTEM  
of the  
STATE OF MONTANA**

**ACTUARIAL VALUATION  
as of June 30, 2005**

Prepared by

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October 4, 2005

Retirement Board  
Judges' Retirement System  
State of Montana

Dear Members of the Board:

At your request, we have completed an actuarial valuation of the Judges' Retirement System as of June 30, 2005. Details about the actuarial valuation are contained in the following report.

I certify that the information included in this report is complete and accurate to the best of my knowledge and belief. All calculations have been prepared in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the applicable Standards of Practice adopted by the American Academy of Actuaries.

Milliman has been engaged by MPERA as an independent actuary. The undersigned is a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries, and an Enrolled Actuary, and is experienced in performing actuarial valuations for large public employee retirement systems.

Actuarial computations presented in this report are for purposes of analyzing the sufficiency of future contributions. Actuarial computations under GASB Statement No. 25 are for purposes of fulfilling financial accounting requirements. The computations in this report have been made on a basis consistent with our understanding of the Retirement Board's funding policies and GASB Statement No. 25. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, different determinations may be needed for other purposes.

Any distribution of this report must be in its entirety, including this cover letter, unless prior written consent is obtained from Milliman.

Respectfully submitted,

Mark O. Johnson, F.S.A., M.A.A.A., E.A.  
Principal and Consulting Actuary

MOJ:wp

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**MONTANA JUDGES' RETIREMENT SYSTEM**  
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**ACTUARIAL CERTIFICATION**

To the best of our knowledge and belief, this report is complete and accurate and contains sufficient information to fully and fairly disclose the funded condition of the Judges' Retirement System as of June 30, 2005.

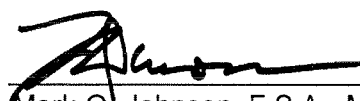
In preparing the valuation, we relied upon the financial information, membership data, and benefit provisions furnished by the System. Although we did not audit this data, we compared the data for this and the prior valuation and tested for reasonableness. Based on these tests, we believe the data to be sufficiently accurate for the purposes of our calculations. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

The Retirement Board has sole authority to determine the actuarial assumptions and methods used for the valuation of the System. The Board adopted all of the actuarial methods and assumptions used in the 2005 valuation.

The findings have been determined according to actuarial assumptions and methods that were chosen on the basis of recent experience of the System and of current expectations concerning future economic conditions. In our opinion, the assumptions used in the actuarial valuation are appropriate for purposes of the valuation, are internally consistent, and reflect reasonable expectations. The assumptions represent our best estimate of future conditions affecting the System. Nevertheless, the emerging costs of the System will vary from those presented in this report to the extent that actual experience differs from that projected by the assumptions.

The actuarial valuation was prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the applicable Standards of Practice adopted by the Actuarial Standards Board of the American Academy of Actuaries. In addition, the assumptions and methods used meet the parameters set for disclosures by Governmental Accounting Standards Board Statement No. 25.

The undersigned is an independent actuary, a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries, an Enrolled Actuary, and experienced in performing valuations for large public employee retirement systems.



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Mark O. Johnson, F.S.A., M.A.A.A., E.A.  
Principal and Consulting Actuary

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**SECTION 1**  
**SCOPE OF THE REPORT**

This report presents the results of our actuarial valuation of the System as of June 30, 2005.

A summary of the findings resulting from this valuation is presented in Section 2 of the report and the underlying calculations are summarized in more detail in Section 3.

All of the calculations of the valuation were carried out using certain assumptions as to the future experience of the System in matters affecting the actuarial cost. Section 4 summarizes the most important of these assumptions and describes the actuarial methods used to calculate costs.

Section 5 outlines the benefit provisions of the System.

The membership data which were supplied to us are summarized in Section 6.

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**SECTION 2**  
**SUMMARY OF FINDINGS AND ANALYSIS OF THE FUNDING LEVEL**

The costs of a retirement system are not determined by the actuary. The ultimate costs of a system are determined by adding all of the benefits and expenses that are paid, and subtracting all investment earnings. These costs cannot be determined exactly until the last member or beneficiary has received the final benefit payment due.

The purpose of an actuarial valuation is to provide a timely best estimate of the ultimate costs in order to allocate them to the appropriate generation of members and taxpayers. The ideal goal is for contributions to remain essentially a constant percentage of covered payroll as long as the assumptions and methods reflect the emerging experience of the system and its members with reasonable accuracy.

**MEMBERSHIP DATA**

We have developed the following comparisons between the membership in this and the prior actuarial valuations:

	<u>June 30, 2005</u>	<u>June 30, 2004</u>
Number of Members		
Retirees and Beneficiaries	49	50
Vested Terminated	4	4
Non-vested Terminated	0	0
Active	<u>50</u>	<u>50</u>
Total Membership	103	104

More detailed membership statistics are shown in Section 6.

**DETERMINATION OF NORMAL COST**

The **Normal Cost** represents the cost assigned to an average member for a given year such that it would meet the continuing costs of that particular benefit, if contributed each year starting with the date of membership. The Entry Age Actuarial Cost Method is designed to produce a Normal Cost that remains a level percentage of salaries, so it is best expressed as a rate.

The following chart shows the Normal Cost from the 2004 valuation compared to the Normal Cost in this valuation. **TABLE 1** provides more details on the Normal Cost.

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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	2005 Actuarial Valuation	2004 Actuarial Valuation
<b>Normal Cost Rate</b>		
Service Retirement	23.22%	23.82%
Disability Retirement	0.66	0.68
Death	1.78	1.83
Withdrawal	<u>0.00</u>	<u>0.00</u>
<b>Total Normal Cost Rate</b>	<b>25.66%</b>	<b>26.33%</b>

The Normal Cost Rate is expected to remain fairly stable as long as the benefits are not amended, experience emerges as assumed, the demographic characteristics of the membership remain reasonably consistent, and the actuarial assumptions are not changed.

**DETERMINATION OF THE ACTUARIAL LIABILITY**

The next step in the actuarial valuation process is to project all future benefit payments from the System for current members and retirees. The level of benefits currently being paid is known, but assumptions are needed to estimate how long they will be paid, and the amount and timing of the payment of future benefits for active and inactive members who are not currently receiving payments.

The summation of the discounted values of all of the projected benefit payments for all current members, at the assumed rate of return, is called the **Actuarial Present Value of Projected Benefits**. Details are shown in **TABLE 2** and summarized below.

(\$000)	2005 Actuarial Valuation	2004 Actuarial Valuation
<b>Actuarial Present Value of Projected Benefits</b>		
Retired Members	\$ 18,312	\$ 19,110
Inactive Members	1,098	996
Active Members	<u>23,148</u>	<u>23,193</u>
<b>Total Value of Projected Benefits</b>	<b>\$ 42,558</b>	<b>\$ 43,299</b>

The **Actuarial Present Value of Future Normal Costs** is the value of all remaining Normal Costs expected to be received over the future working lifetime of current active members. The Actuarial Present Value of Future Normal Costs is subtracted from the Actuarial Present Value of Projected Benefits to arrive at the **Actuarial Liability**, the assets that would exist if the current Normal Cost Rate had been paid for all members since entry into the System, and if all actuarial assumptions had been realized. The following is a summary from **TABLE 2**.

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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(\$000)	2005 Actuarial Valuation	2004 Actuarial Valuation
Actuarial Present Value of:		
Projected Benefits	\$ 42,558	\$ 43,299
Future Normal Costs	<u>8,033</u>	<u>8,575</u>
<b>Actuarial Liability</b>	<b>\$ 34,525</b>	<b>\$ 34,724</b>

**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS**

The next step in the valuation process is to calculate the **Actuarial Value of Assets** that will be used to determine the funding status of the System. The market value of assets was reported to us as of June 30, 2005. However, because the underlying calculations in the actuarial valuation are long-term in nature, it is advantageous to smooth out short-term fluctuations in the market value of assets.

The asset smoothing method projects an Expected Value of Assets using the assumed rate of investment return, then recognizes the difference between the Expected Value and the Market Value over a four-year period. The calculation of the Actuarial Value of Assets is shown in **TABLE 3** and summarized below.

(\$000)	Gain or (Loss)	Reserve Factor	Smoothing Reserve	Value of Assets
<b>Market Value on June 30, 2005</b>				\$ 48,535
2002-03	(322)	25%	(81)	
2003-04	2,074	50%	1,037	
2004-05	36	75%	<u>27</u>	
Smoothing Reserve			\$ 983	<u>(983)</u>
<b>Actuarial Value of Assets</b>				<b>\$ 47,552</b>

**UNFUNDED ACTUARIAL LIABILITY OR ACTUARIAL SURPLUS**

The **Unfunded Actuarial Liability** is the excess of the Actuarial Liability over the Actuarial Value of Assets, which represents a liability that must be funded over time. Contributions in excess of the Normal Cost are used to amortize the Unfunded Actuarial Liability.

An **Actuarial Surplus** exists if the Actuarial Value of Assets exceeds the Actuarial Liability. The calculation of the Unfunded Actuarial Liability or Actuarial Surplus is shown in **TABLE 4** and summarized below.



**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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(\$000)	2005 Actuarial Valuation	2004 Actuarial Valuation
Actuarial Liability	\$ 34,525	\$ 34,724
Actuarial Value of Assets	<u>47,552</u>	<u>45,134</u>
<b>Unfunded Actuarial Liability or (Actuarial Surplus)</b>	<b>\$ (13,027)</b>	<b>\$ (10,410)</b>
 <b>Funded Ratio – Actuarial Value</b>	 <b>138%</b>	 <b>130%</b>
 <b>Funded Ratio – Market Value</b>	 <b>141%</b>	 <b>129%</b>

The **Funded Ratio** is equal to the Actuarial Value of Assets divided by the Actuarial Liability. A funded Ratio of 100% means the Actuarial Value of Assets equals the Actuarial Liability, and the System could be financed by contributions equal to the Normal Cost, if all future experience emerges as assumed.

A Funded Ratio over 100% indicates the System has an Actuarial Surplus.

#### **ACTUARIAL GAINS AND LOSSES**

Comparing the Unfunded Actuarial Liability as of two valuation dates does not provide enough information to determine if there were actuarial gains or losses. The correct comparison is between the Unfunded Actuarial Liability on the valuation date and the Expected Unfunded Actuarial Liability projected from the prior valuation date using the actuarial assumptions in effect for the one-year period.

**TABLE 5** shows the Actuarial Liability as of June 30, 2004, and the elements to project that figure forward to June 30, 2005: the Normal Cost, less benefits paid, plus a charge for interest at the assumed rate of 8% per year. The same table shows the Actuarial Value of Assets as of June 30, 2004, and the elements to project that figure forward to June 30, 2005: the net cash flow (contributions less benefits and expenses), plus a charge for interest at the assumed rate of 8%.

The following is a summary of the actuarial gains or losses during the one-year period.

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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	(\$000)
<b>Unfunded Actuarial Liability</b>	
Actual as of June 30, 2004	\$ (10,410)
Expected as of June 30, 2005	\$ (11,688)
Actual as of June 30, 2005	<u>(13,027)</u>
<b>Actuarial (Gain) or Loss</b>	<b>\$ (1,339)</b>
 <b>(Gain) or Loss by Source</b>	
Investment Loss	\$ 1,141
Liability (Gain)	<u>(2,480)</u>
Net from All Sources	<b>\$ (1,339)</b>

**CALCULATION OF CONTRIBUTION RATE**

The statutory funding rate is tested in the valuation to determine if it is sufficient to cover the Normal Cost Rate plus an amortization payment for the Unfunded Actuarial Liability, if any, over no more than 30 years. The calculations are shown in **TABLE 6** and summarized below.

Rates as a Percentage of Active Member Payroll	2005 Actuarial Valuation	2004 Actuarial Valuation
<b>Statutory Funding Rate</b>	32.81%	32.81%
<b>Normal Cost Rate</b>	<u>25.66</u>	<u>26.33</u>
<b>Available for Amortization</b>	7.15%	6.48%
 <b>UAL (Surplus) (\$000)</b>	\$(13,027)	\$(10,410)
Years to Amortize	30.0	30.0
Rate of Amortization	(15.45)%	(12.42)%
 <b>Calculated Contribution Rate</b>		
Normal Cost Rate	25.66%	26.33%
Rate of Amortization	<u>(15.45)</u>	<u>(12.42)</u>
Total Contribution Rate	10.21%	13.91%
 Shortfall/(Surplus) in Statutory Funding Rate	(22.60)%	(18.90)%

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**DISCLOSURE INFORMATION - GASB No. 25**

The disclosure of the Schedule of Funding Progress calculated in accordance with Statement No. 25 of the Governmental Accounting Standards Board and is shown in **TABLES 7 AND 8**.

The Annual Required Contribution was 13.91% for the 2004-05 fiscal year.

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**SECTION 3**  
**ACTUARIAL VALUATION RESULTS**

The following tables document the findings of the actuarial valuation.

TABLE 1	NORMAL COSTS
TABLE 2	SUMMARY OF ACTUARIAL REQUIREMENTS
TABLE 3	ACTUARIAL VALUE OF ASSETS
TABLE 4	UNFUNDED ACTUARIAL LIABILITY OR ACTUARIAL SURPLUS
TABLE 5	ACTUARIAL GAINS AND LOSSES
TABLE 6	CALCULATION OF CONTRIBUTION RATE
TABLE 7	SCHEDULE OF FUNDING PROGRESS
TABLE 8	SOLVENCY TEST

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**TABLE 1**  
**NORMAL COSTS**

	<b>2005 Actuarial Valuation</b>	<b>2004 Actuarial Valuation</b>
<b>Normal Cost Rate</b>		
Service Retirement	23.22%	23.82%
Disability Retirement	0.66	0.68
Death	1.78	1.83
Withdrawal	<u>0.00</u>	<u>0.00</u>
<b>Total Normal Cost Rate</b>	25.66%	26.33%
 <b>Annual Normal Cost (\$000)</b>	 \$ 1,100	 \$ 1,146
 <b>Present Value of Future Normal Costs (\$000)</b>	 \$ 8,033	 \$ 8,575

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**TABLE 2**  
**SUMMARY OF ACTUARIAL REQUIREMENTS**

(\$000)	2005 Actuarial Valuation	2004 Actuarial Valuation
<b>Retired Members</b>		
Service Retirement	\$ 12,445	\$ 12,919
Disability Retirement	1,149	1,172
Beneficiaries	<u>4,718</u>	<u>5,019</u>
Retired Member Total	\$ 18,312	\$ 19,110
<b>Inactive Members</b>	\$ 1,098	\$ 996
<b>Active Members</b>		
Service Retirement	\$ 21,709	\$ 21,704
Disability Retirement	300	310
Pre-retirement Death	1,139	1,179
Withdrawal	<u>0</u>	<u>0</u>
Active Member Total	\$ 23,148	\$ 23,193
<b>Present Value of Future Projected Benefits</b>	\$ 42,558	\$ 43,299
Present Value of Future Normal Costs	<u>8,033</u>	<u>8,575</u>
<b>Actuarial Liability</b>	\$ 34,525	\$ 34,724

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**TABLE 3**  
**ACTUARIAL VALUE OF ASSETS**

(\$000)

<u>Fiscal Year</u>	<u>Cash Flow</u>	<u>Expected Value</u>	<u>Gain or (Loss)</u>	<u>Market Value</u>
2001-02				\$ 37,349
2002-03	\$ (214)	\$ 40,114	\$ (322)	39,792
2003-04	(91)	42,881	2,074	44,955
2004-05	(50)	48,499	36	48,535

<u>Fiscal Year</u>	<u>Gain or (Loss)</u>	<u>Reserve Factor</u>	<u>Smoothing Reserve</u>
2002-03	(322)	25%	(81)
2003-04	2,074	50%	1,037
2004-05	36	75%	<u>27</u>
			\$ 983

<b>Fair Market Value on June 30, 2005</b>	<b>\$ 48,535</b>
<b>Less, Asset Smoothing Reserve</b>	<b><u>(983)</u></b>
<b>Actuarial Value of Assets on June 30, 2005</b>	<b>\$ 47,552</b>

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**TABLE 4**  
**UNFUNDED ACTUARIAL LIABILITY OR ACTUARIAL SURPLUS**

(\$000)	2005 Actuarial Valuation	2004 Actuarial Valuation
	<hr/>	<hr/>
<b><u>Actuarial Value</u></b>		
Actuarial Liability	\$ 34,525	\$ 34,724
Actuarial Value of Assets	<u>47,552</u>	<u>45,134</u>
Unfunded Actuarial Liability or (Actuarial Surplus)	\$ (13,027)	\$ (10,410)
Funded Ratio (AV)	138%	130%
<b><u>Market Value</u></b>		
Actuarial Liability	\$ 34,525	\$ 34,724
Market Value of Assets	<u>48,535</u>	<u>44,955</u>
Unfunded Actuarial Liability or (Actuarial Surplus)	\$ (14,010)	\$ (10,231)
Funded Ratio (MV)	141%	129%



**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**TABLE 5**  
**ACTUARIAL GAINS AND LOSSES**

(\$000)	Expected	Actual	(Gain) or Loss
<b>2004 Actuarial Liability</b>	\$ 34,724		
Normal Costs	1,146		
Benefits Paid	(1,624)		
Expected Earnings at 8%	<u>2,759</u>		
<b>Actuarial Liability</b>	\$ 37,005	\$ 34,525	\$ (2,480)
<b>2004 Actuarial Value of Assets</b>	\$ 45,134		
Net Cash Flow	(50)		
Expected Earnings at 8%	<u>3,609</u>		
<b>Actuarial Value of Asset</b>	<u>48,693</u>	<u>47,552</u>	<u>1,141</u>
<b>Unfunded Actuarial Liability or (Actuarial Surplus) as of June 30, 2005</b>	\$ (11,688)	\$ (13,027)	\$ (1,339)
<b>Summary Actuarial (Gain) or Loss by Source</b>			
Investment (Gain) or Loss			\$ 1,141
Liability (Gain) or Loss			<u>(2,480)</u>
Total Actuarial (Gain) or Loss			\$ (1,339)

**MONTANA JUDGES' RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**TABLE 6  
CALCULATION OF CONTRIBUTION RATE**

	<u>2005 Actuarial Valuation</u>	<u>2004 Actuarial Valuation</u>
<b>Statutory Funding Rate</b>		
<b>Members</b>	7.00%	7.00%
<b>Employers</b>	<u>25.81</u>	<u>25.81</u>
<b>Total</b>	32.81%	32.81%
<b>Normal Cost Rate</b>	<u>25.66</u>	<u>26.33</u>
<b>Funding Rate Available for Amortization</b>	7.15%	6.48%
 <b>Unfunded Actuarial Liability (Surplus) (\$000)</b>	 \$ (13,027)	 \$ (10,410)
Years to Amortize	30.0	30.0
Rate of Amortization Contribution or (Credit)	(15.45)%	(12.42)%
 <b>Calculated Contribution Rate</b>		
Normal Cost Rate	25.66%	26.33%
Amortization Payment	<u>(15.45)</u>	<u>(12.42)</u>
Total Calculated Rate	10.21%	13.91%
Shortfall/(Surplus) in Statutory Funding Rate	(22.60)%	(18.90)%

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

**DISCLOSURE INFORMATION - GASB No. 25**

**TABLE 7**  
**SCHEDULE OF FUNDING PROGRESS**  
**(DOLLARS IN THOUSANDS)**

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Funded Ratio	Unfunded AAL (UAAL)	Covered Payroll	UAAL as a Percentage of Covered Payroll
June 30, 1996	24,944	27,723	90	2,779	2,907	96
June 30, 1998	31,646	29,017	109	(2,629)	3,144	(84)
June 30, 2000	42,043	27,365	154	(14,678)	3,483	(421)
June 30, 2002	44,963	30,882	146	(14,081)	4,000	(352)
June 30, 2004	45,134	34,724	130	(10,410)	4,403	(236)
June 30, 2005	47,552	34,525	138	(13,027)	4,462	(292)

**TABLE 8**  
**SOLVENCY TEST**  
**(DOLLARS IN THOUSANDS)**

	(1)	(2)	(3)		Coverage Ratios		
Actuarial Valuation Date	Active Member Accounts	Inactive Actuarial Liability	Employer Financed Active Liability	Actuarial Value of Assets	(1)	(2)	(3)
June 30, 1996	1,172	19,317	7,234	24,944	100	100	62
June 30, 1998	1,464	19,855	9,435	31,646	100	100	109
June 30, 2000	2,573 <sup>(1)</sup>	17,204	7,588	42,043	100	100	293
June 30, 2002	2,708	18,977	9,197	44,963	100	100	253
June 30, 2004	3,271	20,106	11,347	45,134	100	100	192
June 30, 2005	3,479	19,411	11,635	47,552	100	100	212

Note:

- (1) Prior to 2000, "active member accounts" included Regular Contributions without interest for active and inactive members. Beginning in 2000, "active member accounts" includes Regular and Additional Contributions with interest, and excludes all accounts of inactive members.

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**SECTION 4**  
**ACTUARIAL METHODS AND ASSUMPTIONS**

This section of the report describes the actuarial methods and assumptions used in this valuation. These methods and assumptions have been chosen by the Retirement Board based on our recommendations. The Retirement Board has the sole authority to select the methods and assumptions used in this actuarial valuation. The recommendations were formed on the basis of recent experience of the System and on current expectations as to future economic conditions.

The assumptions are intended to estimate the future experience of the System and the members of the System in areas which affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of the System's benefits.

In our opinion, the current actuarial methods and assumptions are reasonable and appropriate for this System. The assumptions were developed in accordance with generally recognized and accepted actuarial principles and practices that are consistent with applicable Standards of Practice adopted by the American Academy of Actuaries.

**RECORDS AND DATA**

The data used in the valuation consist of financial information and records of age, service and income of contributing members, former contributing members and their survivors. All of the data were supplied by the System and are accepted for valuation purposes without audit.

**ACTUARIAL COST METHOD**

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to when they are earned, rather than when they are paid. There are a number of methods in use for making a determination.

The funding method used in this valuation is the Entry Age Cost Method. Under this method the actuarial present value of projected benefits for each individual member included in the valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Normal Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future Normal Costs is called the Actuarial Liability.

The excess of the Actuarial Liability over the Actuarial Value of Assets is called the Unfunded Actuarial Liability. If the Actuarial Value of Assets exceeds the Actuarial Liability, the difference is called the Actuarial Surplus.

**MONTANA JUDGES' RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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**ASSET VALUATION METHOD**

Asset values were supplied by the System and were accepted without audit by us. The Actuarial Value of Assets is the market value, adjusted by a four-year recognition of gains and losses.

**INVESTMENT RETURN**

The future investment earnings of the assets of the plan are assumed to accrue at a net annual rate of 8.00%, net of all administrative and investment-related expenses.

**INTEREST ON MEMBER CONTRIBUTIONS**

Interest on member contributions is assumed to accrue at a net annual rate of 5.00%.

**FUTURE SALARIES**

Estimates of future salaries are based on two types of assumptions. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salary changes due to promotion and longevity, referred to as the merit scale, occur even in the absence of inflation. The assumed increase in future salaries due to general wage growth is 4.25% per year. The merit scale, assumed in addition to general wage growth, is shown below.

<u>Service</u>	<u>Merit Scale</u>
0	0.0%
1	0.0
2	0.0
3	0.0
4	0.0
5	0.0
6	0.0
7	0.0
8	0.0
9	0.0
10-14	0.0
15-19	0.0
20 & over	0.0

**MORTALITY**

The probabilities of mortality are based on the following published tables:

Healthy Retirees, Non-Retired Members and Beneficiaries

Males 1994 Male Uninsured Pensioner Table (-1)

Females 1994 Female Uninsured Pensioner Table (-1)

Disabled Retirees

Males IRS Revenue Ruling 96-7 Male Table (-3)

Females IRS Revenue Ruling 96-7 Female Table (+1)

**MONTANA JUDGES' RETIREMENT SYSTEM**  
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<u>Age</u>	<u>Healthy Members</u>		<u>Disabled Retirees</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
50	0.250%	0.141%	2.085%	1.697%
55	0.428	0.224	2.587	1.976
60	0.762	0.415	3.194	2.344
65	1.391	0.819	3.933	2.828
70	2.336	1.367	4.900	3.492
75	3.661	2.192	6.468	4.710
80	6.007	3.802	8.522	6.346
85	9.636	6.557	10.971	9.015
90	14.995	11.247	14.405	13.322
95	23.194	18.352	19.372	20.176

**SERVICE RETIREMENT**

The assumed rates of retirement used in this valuation are shown below.

<u>Age</u>	<u>&lt; 15 Yrs</u>	<u>Year first attaining 15 years of service</u>
60 - 64	-	50%
65	-	100%
66	-	100%
67	-	100%
68	-	100%
69	-	100%
70 & over	100%	100%

All vested terminated members are assumed to retire when first eligible for an unreduced benefit.

**MONTANA JUDGES' RETIREMENT SYSTEM**  
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**DISABLEMENT**

The assumed rates of disablement are illustrated below at specified ages. We further assume that 10% of all disabilities are duty-related. We also assume that all disabilities are permanent, and no disabled member will recover and return to work.

<u>Age</u>	<u>Male</u>	<u>Female</u>
22	-	-
27	0.01%	0.01%
32	0.01	0.01
37	0.06	0.03
42	0.09	0.15
47	0.17	0.15
52	0.36	0.30
57	0.62	0.36
62	0.00	0.00

**OTHER TERMINATIONS OF MEMBERSHIP**

No terminations of membership are assumed other than for retirement, death, or disability.

**PROBABILITY OF MARRIAGE**

100% of all non-retired members are assumed to be married. Male spouses are assumed to be four years older than female spouses.

**Changes in Actuarial Assumptions Made for this Valuation**

The following method and assumptions were revised since the last valuation:

**Actuarial Methods**

- ◆ None

**Economic Assumptions**

- ◆ None

**Demographic Assumptions**

- ◆ None

**MONTANA JUDGES' RETIREMENT SYSTEM**  
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**SECTION 5**  
**SUMMARY OF BENEFIT PROVISIONS**

All of the calculations contained in this report are based on our understanding of the benefit and eligibility provisions of the system. The provisions used in this valuation are summarized below for reference purposes.

<b>Normal Retirement</b>	Eligibility:	Age 60 and 5 years of membership service.
	Benefit:	(1) If hired before July 1, 1997 and not electing GABA before January 1, 1998, the sum of (a) and (b) below:  (a) Years of service credit (up to 15), multiplied by current salary, multiplied by 3-1/3%, plus  (b) Years of service credit (over 15), multiplied by current salary, multiplied by 1.785%.  (2) If hired on or after July 1, 1997 or electing GABA prior to January 1, 1998:  (a) Same formula as above, substituting highest average compensation for current salary.
	Normal Form:	The monthly benefit for the life of the member, with a final payment equal to the accumulated contributions of the member account at retirement less the sum of all payments made to the date of death. This final payment may be annuitized for non-GABA members or members electing GABA on or after January 1, 1998.
<b>Disability Retirement</b>	Eligibility:	Service disablement
	Benefit:	For non-GABA members or members electing the GABA on or after January 1, 1998 – 50% of current salary.  For GABA members hired on or after July 1, 1997 or electing the GABA prior to January 1, 1998 – 50% of highest average compensation.



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	Eligibility:	Non-service disablement
	Benefit:	Actuarial equivalent of accrued service retirement benefit.
<b>Death before Retirement</b>	Eligibility:	Service death
	Benefit:	Accrued service retirement benefit commencing at time of death.
	Eligibility:	Non-service death before age 60
	Benefit:	Accrued service retirement benefit commencing at time of death.
<b>Termination Benefit</b>	Eligibility:	Prior to five years of membership service
	Benefit:	Return of member contributions with interest.
	Eligibility:	5 years of membership service and involuntary termination or 12 years of service credit
	Benefit:	Either (a) or (b) below:  (a) Return of member contributions with interest, or  (b) The accrued actuarial equivalent of the service retirement benefit.
<b>Benefit Adjustments</b>	Eligibility:	Retired members and beneficiaries.
	Benefit:	Either (a) or (b) below, as elected:  (a) An annual adjustment (GABA) of 3.0%, commencing January 1 <sup>st</sup> , one year after retirement for members hired on or after July 1, 1997 or if elected by the member, or  (b) The annual increase proportional to the annual increase in compensation to active members.
<b>Contributions</b>	Members:	7.00% of members' compensation.
	Employers:	25.81% of members' compensation.

**MONTANA JUDGES' RETIREMENT SYSTEM**  
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**SECTION 6**  
**SUMMARY OF MEMBERSHIP DATA**

The following tables depict the participant data that was used in the valuation. Table 9 is a history of participant characteristics for the System. Table 10 displays the distribution of Active Members by age and service showing average annual salaries. Table 11 is a distribution of the retirees by age, showing average monthly benefits. Table 12 is a distribution of Vested Inactive Members by age.

**TABLE 9**  
**MEMBERSHIP HISTORY**

	<u>2005</u>	<u>2004</u>	<u>2002</u>	<u>2000</u>	<u>1998</u>	<u>1996</u>
<b>Active Members</b>						
Number	50	50	48	46	44	44
Average Age	55.4	54.8	53.7	55.3	53.8	-
Average Service	10.3	9.5	8.6	9.1	7.8	-
Average Salary	\$89,301	\$88,770	\$83,327	\$77,626	\$71,450	\$66,141
<b>Inactive Members</b>						
Service Retirement	30	31	31	27 <sup>(1)</sup>	48	45
Disability Retirement	2	2	2	3 <sup>(2)</sup>	-	1
Survivors	17	17	18	17 <sup>(3)</sup>	2	1
Vested Deferred	4	4	2	1	1	1
Non-vested Terminated	-	-	-	-	-	-
Total Inactive Members	53	54	53	48	51	48
<b>Total Membership</b>	103	104	101	94	95	92

Notes:

- (1) Beginning in 2000, service retirements exclude members who originally retired on a disability, and beneficiaries of members who died after retirement.
- (2) Beginning in 2000, disability retirements include all members who originally retired on a disability, regardless of their current age.
- (3) Beginning in 2000, survivors include beneficiaries of members who died after retirement, as well as beneficiaries of members who died prior to retirement.

**MONTANA JUDGES' RETIREMENT SYSTEM**  
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**TABLE 10**  
**DISTRIBUTION OF ACTIVE MEMBERS**

Age	Years of Service							
	Under 5		5 to 9		10 to 14		15 to 19	
	Number	Average Salary	Number	Average Salary	Number	Average Salary	Number	Average Salary
Under 25	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-
35-39	1	88,164	-	-	-	-	-	-
40-44	3	91,957	-	-	-	-	-	-
45-49	5	89,631	1	88,164	1	88,164	-	-
50-54	1	88,164	1	88,164	6	88,164	1	88,164
55-59	6	89,386	1	88,164	6	90,858	4	88,164
60-64	-	-	2	88,164	2	91,829	1	95,493
65-69	-	-	1	88,164	-	-	-	-
70 & over	-	-	-	-	1	88,164	-	-
Totals	16	89,792	6	88,164	16	89,632	6	89,386

Age	Years of Service							
	20 to 24		25 to 29		30 & Up		All Years	
	Number	Average Salary	Number	Average Salary	Number	Average Salary	Number	Average Salary
Under 25	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	1	88,164
40-44	-	-	-	-	-	-	3	91,957
45-49	-	-	-	-	-	-	7	89,212
50-54	-	-	-	-	-	-	9	88,164
55-59	-	-	-	-	-	-	17	89,546
60-64	4	88,164	-	-	-	-	9	89,793
66-69	1	88,164	1	88,164	-	-	3	88,164
70 & over	-	-	-	-	-	-	1	88,164
Totals	5	88,164	1	88,164	-	-	50	89,301

**MONTANA JUDGES' RETIREMENT SYSTEM**  
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**TABLE 11**  
**DISTRIBUTION OF RETIRED MEMBERS**

Age	Service Retirees		Disabled Retirees		Survivors	
	Number	Average Monthly Benefit	Number	Average Monthly Benefit	Number	Average Monthly Benefit
Under 40	-	-	-	-	-	-
40-44	-	-	-	-	-	-
45-49	-	-	-	-	-	-
50-54	-	-	-	-	1	941
55-59	1	522	-	-	1	949
60-64	2	3,960	-	-	3	1,300
65-69	2	3,508	-	-	1	4,329
70-74	2	3,177	1	4,973	4	2,122
75-79	10	2,853	-	-	2	2,935
80-84	7	3,015	-	-	3	1,668
85-89	4	2,771	1	3,084	2	3,304
90-94	2	4,296	-	-	-	-
95-99	-	-	-	-	-	-
100 & over	-	-	-	-	-	-
TOTALS	30	3,037	2	4,029	17	2,123

**TABLE 12**  
**DISTRIBUTION OF VESTED INACTIVE MEMBERS**

Age	Number
Under 30	-
30-34	-
35-39	-
40-44	-
45-49	-
50-54	-
55-59	3
60-64	-
65-69	1
70 & over	-
Total	4